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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Joel M. Petersen

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EXAMINER

CHANG, AUDREY Y

ART UNIT

PAPER NUMBER

2872

DATE MAILED: 02/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/805,850

Applicant(s)

PETERSEN ET AL.

Examiner

Audrey Y. Chang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 December 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-47 is/are pending in the application.
- 4a) Of the above claim(s) 29-47 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Remark

- This Office Action is in response to applicant's amendment filed on December 12, 2005, which has been entered into the file.
- By this amendment, the applicant has amended claims 1, 17 and 23.
- **Claims 29-47 are withdrawn** from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on June 9, 2005.
- Claims 1-28 remain pending in this application.
- The objections to claims set forth in the previous Office Action are withdrawn in response to applicant's amendment.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claims 1, and 3-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Waitts.**

Waitts teaches a *three dimensional/two-dimensional graphic material* that is comprised of a *sheet of material* (10, as indicated in Figure 1), having a *surface* wherein the surface comprises of a plurality of optical elements including *holographic micro-textures*, (serves as the microscopic patterns), (12, 14, 16

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in Figure 1 and 812 in Figure 11) and *diffractive grating micro-textures*, (also serves as the microscopic patterns), (24, 26, 28 in Figure 1 and 826 in Figure 11) that cooperate to produce an image (i.e. a composite image), (please see Figures 1-2 and Figures 4-11). Waitts teaches that the diffractive gratings micro-textures reproduce two-dimensional images, (which *appears* at the plane of the sheet) and the holographic micro-textures reproduce images appear three dimensional such that the reproduced images may be at *different focal planes*, (18, 20 and 22, Figure 1, column 2, line 63 to column 3, line 3), with respect to the focal plane defined by the plane of the sheet (10). This suggests that the holographic micro-textures and the diffractive grating micro-textures comprise *different focal lengths* which therefore is able to produce images at *different focal planes* by different holographic micro-textures and the diffractive grating micro-textures.

Claim 1 has been amended to include the feature that the optical elements having optical power. Waitts teaches that the diffractive gratings micro-textures reproduce two-dimensional images, (which *appears* at the plane of the sheet) and the holographic micro-textures reproduce images appear three dimensional such that the reproduced images may be at *different focal planes*, (18, 20 and 22, Figure 1, column 2, line 63 to column 3, line 3), with respect to the focal plane defined by the plane of the sheet (10). But it does not teach explicitly that if the diffractive gratings and the holographic micro-textures have optical power or not. However the different focal planes for the reproduced images from the different elements may suggest that the elements may have some sort of optical power to reproduce the images at the different focal planes. Furthermore, it is well known in the art that it is a standard practice in the art to make the holographic or diffractive gratings having optical power by using focused object beams in the recording step and such modification would have the advantage of making more sharply defined holographic/diffracted images. It would then have been obvious to one skilled in the art to modify the holographic micro-textures and diffractive gratings of Waitts to make them have optical power so that more sharply defined reconstructed images can be produced.

With regard to claim 5, Waitts teaches that the holographic micro-textures and the diffractive micro-textures may reproduce images at different focal planes but it does not teach explicitly to make the focal length of some the micro-textures negative. However it is known in the art that an optical element having negative focal length will not be able to produce real image but will tend to diverge the incident light and makes a *virtual* image formed behind the plane of the optical element. It would then have been obvious to one skilled in the art to modify the graphic material of Waitts comprise optical elements with negative focal length for the benefit of adding different decorative and aesthetic appearance to the material.

With regard to claim 6, Waitts teaches that the holographic micro-textures and the diffractive grating micro-textures comprise a *plurality of grooves* formed on the surface, (please see Figure 2).

With regard to claims 7-8, Waitts teaches the micro-textures comprise a plurality of grooves but it does not teach explicitly about the depth and the spacing of the grooves to have the values claimed. However based on the fundamental diffraction theory it is known in the art that the depth and the spacing or period of the grooves determine the diffraction properties of the diffractive optical elements, (both holographic micro-texture and the diffractive grating micro-texture are diffractive optical elements). The micro-textures therefore either implicitly have the claimed depth and spacing for making it to diffract visible range of light to make color graphic pattern or it is an obvious matter of design choices to one skilled in the art to make these micro-textures having the depth and the spacing having the claimed values so that they are capable of diffracting visible light for making color appearing graphic design.

With regard to claims 9-10, the surface is substantially smooth on a *macroscopic* scale since the plurality of grooves are in the microscopic dimension and since Waitts teaches that the graphic material may be applied to a credit card, it is implicitly true the surface is substantially smooth for a region of 1 centimeter or larger.

With regard to claims 11-14, Waitts teaches that the graphic material comprises a transparent coating sheet (38, Figure 2) and a reflective layer that is formed by aluminum or metallization is interposed between the transparent coating sheet (38) and the substrate (10, please see column 3, lines 60-67) such that the image reproduced are of reflective images.

With regard to claim 15, Waitts teaches that the reflective layer may be formed by metallization but it does not teach explicitly that it may also be made by a thin film dielectric coating. However it is common knowledge in the art that a thin film dielectric coating has the ability of reflecting light with the desired or selected wavelength spectrum. It would then have been obvious to one skilled in the art to use a thin film dielectric coating as the reflective layer for the benefit of making the reflective layer not just reflecting light but also has specific wavelength selectivity so that it adds additional color effect to the graphic material

With regard to claim 16, Waitts teaches that the coating sheet may include acrylic, (please see column 4, lines 47-49).

With regard to claim 17, Waitts teaches that the graphic material further comprises an *adhesive* (36, Figure 2).

With regard to claim 18, Waitts teaches a web (34) serves as the laminate that is deposited over the surface to produce a substantially smooth surface.

With regard to claim 19, Waitts teaches that the transparent coating layer (38) may comprises a soft lacquer, (please see column 3, line 62), which is flexible.

With regard to claim 20, Waitts teaches that the graphic material is applicable to a credit card wherein a credit card could be rigid, (please see column 1).

With regard to claims 21-26, Waitts teaches that the holographic micro-textures and the diffractive grating micro-textures may be arranged into patterns such as geometric shapes or letters, (please see 4-11), wherein each of the letter or the geometric shapes are formed by the micro-textures

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with the similar focal length in order to properly reproducing the image. These patterns may also be superimposed with each other with the micro-textures representing the letters or shapes (326, 412, 526, 612, 726, 812) being placed on top of the micro-textures representing background pattern, (312, 426, 512, 626, 712, or 826 in Figures 4-11).

Claims 27 and 28 are confusing whose scopes are not well defined they therefore cannot be examined with details.

3. Claims 1-2, 5-14, and 16-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Keberlein (PN. 6,800,357).

Keberlein teaches a *multilens star box or material* serves as the *product* that is comprises a *sheet of material*, (12 or 38, Figures 2-7) having a surface that is comprised of a plurality of *optical elements* (such as pieces 12), including *multiple Fresnel lenses* serves as the *microscopic patterns*, that *cooperate* to produce an image, (for instance a star shape image or a plurality of star shapes image as shown in Figures 1 and 3-7).

Keberlein teaches that based on the diffractive and refractive properties of the Fresnel lenses, (as shown in Figure 2), the incident light will be refracted and diffracted in such a manner that produces image that appears to be *three dimensional* or with *depth perception*. One skilled in the art would understand that the illusion of three-dimensional or the depth is resulted from image formed at *different* focal points and focal length. Keberlein does teach explicitly that the arrangement of the pieces (12) having these Fresnel lenses do have *different focal points* to an observer which therefore provide three-dimensional illusion, (please see column 5, lines 46-61). Although this reference does not teach explicitly that the focal length for these pieces of multiple Fresnel lenses are *different* such feature is either inherently met by the disclosure or obvious modification to one skilled in the art for the benefit of enhancing the three dimensional illusion of the image produced by the pieces having these Fresnel lenses.

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Claim 1 has been amended to include the feature that the optical elements having optical power. Keberlein teaches that the optical elements are comprised of Fresnel lenses, which implicitly have optical power.

With regard to claim 5, Keberlein teaches that the Fresnel lenses have positive focal length but it does not teach explicitly that they may also have negative focal length. However it is known in the art that an optical element having negative focal length will not be able to produce real image but will tend to *diverge* the incident light and makes a *virtual* image formed behind the plane of the optical element. It would then have been obvious to one skilled in the art to modify the Fresnel lenses of Keberlein to make some of the lenses with negative focal length for the benefit of adding different decorative and aesthetic appearance for the product.

With regard to claims 6-8, Keberlein teaches that the pieces of the Fresnel lenses include a plurality of grooves, (16) and the grooves are formed with a depth between 2.54 micrometer to 12.7 micrometer, (please see column 4, line 58 to column 5, line 6). Although this reference does not teach explicitly about the spacing of the grooves to have the claimed values, but based on the fundamental diffraction theory it is known in the art that the spacing or period of the grooves determines the diffraction properties of the diffractive optical elements, (it is noted that a Fresnel lens is a diffractive optical element). The Fresnel lenses therefore either implicitly have the claimed spacing value for the purpose of diffracting visible range of light to make color graphic pattern or it is an obvious matter of design choices to one skilled in the art to make these Fresnel lenses having the spacing having the claimed values so that they are capable of diffracting visible light for making color appearing graphic design.

With regard to claims 9-10, the surface is substantially smooth on a *macroscopic* scale since the plurality of grooves are in the microscopic dimension and since Keberlein teaches that the multilens star graphic material may be applied to a carton box, (please see Figure 6), it is implicitly true the surface is substantially smooth for a region of 1 centimeter or larger.

With regard to claims 11-14, Keberlein teaches that the material comprises an elastomeric film (12, Figure 2) and a reflective layer (A) that is formed by aluminum or metallization (please see Figure 2 and column 2, and column 5, lines 7 to 36) such that the image reproduced are of reflective images.

With regard to claim 16, Keberlein teaches that the elastomeric film may include polymeric, glass or plastic, (please see column 2, lines 34-40).

With regard to claim 17, this reference does not teach explicitly to include an adhesive however it is known in the art to use adhesive to make element adhere to object intended such modification would therefore have been obvious to one skilled in the art to make the multilens star pieces capable of being adhere to object intended to add decorative design to the object.

With regard to claim 18, this reference does not teach explicitly to add a laminate over the surface however it is common practice in the art to add laminate or protective layer over misconstrued layer for the benefit of adding extra protection to the surface to prevent it from being damaged. Such modification would therefore have been obvious to one skilled in the art.

With regard to claims 19-20, Keberlein teaches that the material for embossing the Fresnel lenses, i.e. the elastomeric layer may include various materials that include rigid materials as well as flexible materials, (please see column 2, lines 36-46).

With regard to claims 21-22, Keberlein teaches that the Fresnel lenses are arranged into star pattern and it is obvious modification and design choice to one skilled in the art to make regions of the multilens star material having regions with different focal length adjacent to each other so that three-dimensional illusion may be enhanced.

Response to Arguments

4. Applicant's arguments with respect to claims 1-28 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

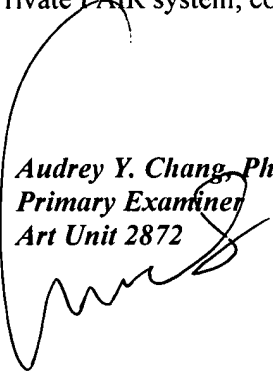
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Audrey Y. Chang whose telephone number is 571-272-2309. The examiner can normally be reached on Monday-Friday (8:00-4:30), alternative Mondays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on 571-272-2312. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Audrey Y. Chang, Ph.D.
Primary Examiner
Art Unit 2872



A. Chang, Ph.D.